

*In the Claims:*

The claims are not being amended at this time, but the claims as pending are listed below for the Examiner's convenience.

1. A computer-implemented method of generating a simulated microarray image, the method comprising:  
receiving a plurality of simulation parameters; and  
generating the simulated microarray image based at least on the simulation parameters.
2. A computer-readable medium comprising computer-executable instructions for performing the method of claim 1.
3. The computer-implemented method of claim 1 wherein the simulated microarray image is associated with known values, the method further comprising:  
analyzing the simulated microarray image via a microarray imaging procedure, the analyzing comprising calculating observed values; and  
comparing the known values with the observed values to benchmark the microarray imaging procedure.
4. The computer-implemented method of claim 3 wherein:  
the known values comprise signal intensities;  
the observed values comprise signal intensities; and  
the comparing compares the signal intensities of the known values with the signal intensities of the observed values.
5. The computer-implemented method of claim 1 wherein the simulated microarray image simulates random perturbations in array preparation, printing, and scanning.
6. The computer-implemented method of claim 1 wherein the simulated microarray image simulates background noise.

7. The computer-implemented method of claim 1 wherein the simulated microarray image simulates radius variation of cDNA deposition spots.

8. The computer-implemented method of claim 1 wherein the simulated microarray image simulates spot drift of cDNA deposition spots.

9. The computer-implemented method of claim 1 wherein the simulated microarray image simulates center core variation of cDNA deposition spots.

10. The computer-implemented method of claim 1 wherein the simulated microarray image simulates chord removal of cDNA deposition spots.

11. The computer-implemented method of claim 1 wherein the simulated microarray image simulates edge noise of cDNA deposition spots.

12. The computer-implemented method of claim 1 wherein the simulated microarray image simulates edge enhancement of cDNA deposition spots.

13. The computer-implemented method of claim 1 wherein the simulated microarray image simulates signal intensity.

14. The computer-implemented method of claim 1 wherein the simulated microarray image simulates channel conditioning.

15. The computer-implemented method of claim 1 wherein the simulated microarray image simulates spike noise.

16. The computer-implemented method of claim 1 wherein the simulated microarray image simulates scratch noise.

17. The computer-implemented method of claim 1 wherein the simulated microarray image simulates snake noise.

18. The computer-implemented method of claim 1 wherein the simulated microarray image simulates smoothing.

19. The computer-implemented method of claim 1 wherein the generating comprises randomization at a spot level of the simulated microarray image.

20. The computer-implemented method of claim 1 wherein the generating comprises randomization at a block level of the simulated microarray image.

21. The computer-implemented method of claim 1 wherein the generating comprises randomization at an array level of the simulated microarray image.

22. A software system for generating a simulated microarray image, the system comprising:  
simulation parameters; and  
a simulated microarray image generator operable to generate a simulated microarray image based at least on the simulation parameters.

23. A software system for generating a simulated microarray image, the system comprising:  
means for storing simulation parameters; and  
means for generating a simulated microarray image based at least on the simulation parameters.

24. A method comprising:  
generating a simulated microarray image based on simulation parameters, wherein the simulated microarray image is associated with known values; and  
analyzing the simulated microarray image via a microarray imaging procedure, the analyzing comprising calculating observed values.
25. A computer-readable medium having computer-executable instructions for performing the method of claim 24.
26. The method of claim 24 further comprising:  
comparing the known values with the observed values to benchmark the microarray imaging procedure.
27. The method of claim 28 further comprising:  
generating a rating based on results of the comparing, wherein the rating indicates effectiveness of the microarray imaging procedure.
28. The method of claim 24 wherein the values comprise spot intensity values.
29. The method of claim 24 wherein the generating comprises simulating a fluorescent background level for the simulated microarray image.
30. The method of claim 24 wherein the generating comprises simulating spots for the simulated microarray image.
31. The method of claim 24 wherein the generating comprises simulating post-processing phenomena for the simulated microarray image.

32. A method for simulating a microarray, comprising:  
defining a plurality of parameters;  
generating a microarray according to the parameters using an imaging procedure;  
comparing the microarray to a known value; and  
evaluating the imaging procedure in response to the comparison.

33. A computer-readable medium having computer-executable instructions for  
performing the method of claim 32.